QCD@Work - International Workshop on QCD - Theory and Experiment



Contribution ID: 42

Type: Talk

## **QCD** measurements with ATLAS

Tuesday, 18 June 2024 10:00 (30 minutes)

The ATLAS experiment has performed a range of QCD measurements. The recoil of the Z-boson is sensitive to quark and gluon emissions and is used to determine the strong coupling constant in a novel approach. Measurements of transverse energy-energy correlation in multijet events are compared to state-of-the-art NLO and NNLO predictions.used to determine the strong coupling constant. Jet cross-section ratios between inclusive bins of jet multiplicity are measured differentially in variables that are sensitive to either the energy-scale or angular distribution of hadronic energy flow in the final state. Several improvements to the jet energy scale uncertainties are described, which result in significant improvements of the overall ATLAS jet energy scale uncertainty. The measurements are compared to state-of-the-art NLO and NNLO predictions. Finally, we present fits to determine parton distribution functions (PDFs) using a diverse set of measurements from the ATLAS experiment at the LHC in combination with deep-inelastic scattering data from HERA.

Primary author: CONROY, Eimear (University of Oxford (GB))Presenter: CONROY, Eimear (University of Oxford (GB))Session Classification: Session 1